The early stages of life are a period of rapid growth and development. From the first day of pregnancy until 2 years of age, the so-called "first 1,000 days", all the major organs in the body grow and mature in function. Therefore, this period offers a critical window of opportunity to shape both short and long-term health.

Nutrition plays a crucial role in this unique period. An imbalanced intake of nutrients in terms of quality and quantity (under- and overnutrition) can have profound effects on the development of the child, including his or her risk of non-communicable diseases in later life. Increasing scientific evidence shows that meeting the specific nutritional needs during the first 1,000 days and beyond, will positively influence health outcomes. Human milk is the preferred nutrition for all infants and ensures optimal growth and development in early life. We are inspired to develop adapted nutritional solutions that mimic the growth and early development benefits of human milk, as closely as possible. Based on insights from the composition and function of human milk, we develop and use prebiotics, probiotics, synbiotics and postbiotics demonstrated to support the development of a healthy microbiota. This also helps build resilience, the ability to adapt to environmental challenges by establishing, maintaining and regulating an appropriate immune response.

When infants and children are unwell, they are more vulnerable and are at increased risk becoming malnourished. Faltering growth is a common paediatric problem that can have important detrimental consequences for a child's development. Although the causes of faltering growth are multi-factorial, the direct cause is an inadequate intake, especially of energy, protein and micronutrients.

Nutritional intervention should be initiated by the healthcare professionals, as early as possible, to help prevent adverse effects. Infants and children, healthy or suffering from diseases, have specific nutritional needs that change as they grow. Nutrition in early life has key impact on optimal physical growth and body composition, cognitive development; immune maturation; development of the gastrointestinal system and development of healthy appropriate eating habits. At Nutricia, we aim to deliver specialised nutritional solutions and services for each stage of development to ensure an optimal start in life.
Prof. Ruurd van Elburg (Chair)
Chief Medical Officer & Preterm Science and Program Director,
Danone Nutricia Research, NL
Emma Children’s Hospital, University of Amsterdam, NL

Ruurd studied at the Medical School of the VU University, Amsterdam, NL. He graduated as a MD in 1989. From 1989 – 1995 he worked at the University Medical Center Groningen, The Netherlands on his PhD degree ‘The Sugar Absorption Test; Clinico-pathophysiological considerations’ including studies on a food allergy, celiac disease and cystic fibrosis in children. From 1993 – 1998, he was resident in Pediatrics at the University Medical Center Groningen and Isala Clinics Zwolle, The Netherlands. From 1998 - 2011, he worked as a Pediatrician–Neonatologist at the VU University Medical Center, Amsterdam, NL.

In 2011, he joined Danone Nutricia Research and currently he is Chief Medical Officer and Preterm Science and Program Director. In addition, from 2015 he holds a position as Professor of Early Life Nutrition at the Emma Children’s Hospital, University of Amsterdam, NL. His main research interests are: Pediatric Gastroenterology, Nutrition and Neonatology. He has published > 125 peer-reviewed papers, > 20 book(chapters), and has an H-factor of 26. In addition, he is a member of the European Society of Pediatric Research (ESPR), European Society Pediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN), international society of Developmental Origins of Health and Disease (DOHaD), the Dutch Pediatric Association, and the Dutch Society of Perinatal Medicine.

Dr. Mohamad Miqdady (Chair)
American Board of Ped. GI, Hepatology & Nutrition
Chief, Ped. GI, Hepatology & Nutrition Division
Sheikh Khalifa Medical City, Abu Dhabi, UAE
Adjunct Staff, Cleveland Clinic, USA

Dr. Mohamad Miqdady is American Board certified in Pediatric Gastroenterology, Hepatology and Nutrition. He is the Division Chief, Ped. GI, Hepatology & Nutrition Division at Sheikh Khalifa Medical City in UAE. Also an Adjunct Staff at Cleveland Clinic, Ohio USA.

Member of the FISPGHAN Council (Federation of International Societies of Pediatric Gastroenterology Hepatology, and Nutrition) Expert member FISPGHAN Malnutrition/Obesity Expert team.

Dr. Miqdady completed his Fellowship in Pediatric Gastroenterology at Baylor College of Medicine and Texas Children’s Hospital in Houston, TX, USA. He held the position of Assistant Professor at Jordan University of Science and Technology in Jordan for six years prior joining SKMC.

Main research interests include feeding difficulties, picky eating, obesity, procedural sedation, allergic GI disorders and celiac disease. He has several publications and authored few book chapters including www.uptodate.com. Finally Dr. Miqdady is on the Editorial Board of few journals including Gastroenterology & Hepatology.
Dr. Miguel Sáenz de Pipaón
Pediatrician at the Neonatology Department at Hospital Universitario La Paz, Madrid, Spain

Miguel is a Spanish neonatologist who studied nutrition in premature infants. His observations are related with protein and lipid metabolism, the gut, microbiota, body composition and growth.

After his medicine program at the Complutense University of Madrid, Miguel became a pediatrician at La Paz University Hospital. As pediatrician he has further been trained in nutrition and research in Rotterdam. In 2012 he performed a postdoctoral research at Children Nutrition Research Center in Baylor, Houston, Texas.

Research interests

His early publications directly addressed the fact that quality of life in low birth weight is related to adequate early nutrition. By providing evidence, this body of work has changed the standards of care for very low birth weight infants and will continue to aid in relevant medical settings well into the future. Miguel served as the primary investigator or co-investigator in all these studies.

In addition to the contributions described above, with collaborators, Miguel directly documented useful information for future studies dealing with probiotic gut colonization and, particularly, with the detection and quantification of fecal and blood immune compounds in preterm infants.

Finally, Miguel is also interested in body composition and epigenetics as well as epidemiology related to nutrition and growth.

NUTRITIONAL NEEDS OF PRETERM INFANTS - IN HOSPITAL AND AFTER DISCHARGE

Despite apparent progress in perinatal care extrauterine growth restriction is a major clinical problem for prematurely born neonates. Growth failure in the neonatal intensive care unit (NICU) remains common, especially with extremely low birth weight (ELBW) preterm neonates. Early postnatal growth is associated with neurodevelopment, with growth deficits compromising cognitive development. Although rapid catch-up growth confers potential short-term advantages in terms of survival and neurodevelopment, it is also associated with a possible increased risk of metabolic disorders in later life. As such appropriate weight gain is the desirable outcome to ensure survival, optimal growth and neurodevelopment of preterm infants.

It has been estimated that about 50% of the variance in early postnatal growth can be attributed to nutrition, however optimum nutrition that meets the special needs of preterm infants remains a challenge. The nutritional and immunological benefits of providing human milk to very preterm (gestational age (GA) < 32 weeks) or very low birth weight (VLBW, i.e., birth weight < 1500 g) infants have been increasingly recognized, however the protein content is highly variable and inadequate to support appropriate infant growth. As such additional protein, usually supplied in currently available commercial fortifiers, is required to meet the requirements of very preterm infants. Adding a human milk fortifier and/or extra proteins to human milk increases its osmolality, which has previously been associated with adverse gastrointestinal events in preterm infants. Recent evidence however indicates that feed osmolality in the range of 300-500 mOsm/kg is not associated with adverse gastrointestinal symptoms in neonates.

With regards to cognitive development, neonatal morbidities such as intraventricular hemorrhage (IVH), periventricular leukomalacia, bronchopulmonary dysplasia (BPD), and infectious diseases (sepsis, necrotizing enterocolitis) have also been and associated with brain abnormalities and increased risks for cognitive impairment in preterm children. BPD in particular is the most common complication after preterm birth and has been shown to be associated with academic achievement in preterm infants. Optimal nutritional support is considered a cornerstone in the treatment / prevention of BPD. In addition, very preterm infants receiving a formula with an ω-6/ω-3 ratio of 2/1 have been shown to have higher blood levels of essential fatty acids during the first year of life and better psychomotor development compared with those receiving a formula with an ω-6/ω-3 ratio of 1/1.

In the longer-term nutritional management of preterm infants, the ESPGHAN Committee on Nutrition recommend that human milk-fed premature infants discharged home with subnormal weight for postconceptional age be provided with extra energy and nutrients. In this session, we present 1 approach of doing this.

Nutricia satellite symposium and abstract booklet
Prof. Eline van der Beek
Professor of Nutritional Programming, Danone Nutricia Research, NL
Department of Pediatrics | University Medical Centre Groningen, NL

Eline van der Beek studied Zoology in Utrecht and completed a PhD in Neuroendocrinology in 1994. She was an A/Prof at the Animal Sciences Department, Wageningen University, before joining Numico Research in 2000. In 2007, she became Program Director responsible for metabolic programming research.

From August 2010-July 2015 she was Research Director of Danone-Nutricia Early Life Nutrition in Singapore, the first centre in Asia to focus on maternal and child health, understanding the impact of nutrition on growth and the relation to immune, gut (microbiota), brain & metabolism development in early life.

In August 2015 she returned to R&D headquarters in the Netherlands were she is now heading the Metabolism & Growth Platform in the Life Science Innovations Department of Early Life Nutrition. Since June 2016 she has been appointed as Professor in 'Nutritional Programming' on an endowed chair at the Department of Pediatrics, University Medical Centre Groningen, NL. She continues to study nutritional programming of later life health, understanding the role of nutrition, in particular nutrient quality and specific needs during different stages of development. Eline is a (co)inventor >25 patent applications and has published >80 articles in peer reviewed journals.

WHY CARE ABOUT NUTRITION AND EATING HABITS IN EARLY LIFE? IMPACT ON GROWTH AND DEVELOPMENT

The rapid increase in the incidence and severity of non-communicable diseases (NCDs) not only in high income countries, but also in low and middle-income countries is a major global health concern. The increase in NCDs has happened too fast to be explained by genetic changes and suggests that environmental factors, presumably modulated by epigenetic phenomena may play a pivotal role. Increasing evidence indicates that the most critical period in life is during the first 1000 days, i.e. from conception until 2 years of age.

Undernutrition is still prevalent in many regions while at the same time rates of overweight and obesity are increasing dramatically worldwide. Already at birth, low and high birth weight which are crude measures of the fetal nutrition status in the womb can predict growth patterns during the postnatal phase. Unbalanced growth during childhood is associated with increased risk for disease later in life. Recent evidence suggests that in particular "catch-up" growth as seen in for instance low birth weight infants, but also slow or fast growth by itself may increase susceptibility. During infancy and childhood body size doubles and body weight increases 5-fold between birth and 3 years of age. Consequently the (relative) nutritional requirements are high, but the child’s diet rapidly changes. While it is initially milk based, solids are gradually introduced to the diet and finally the child will eat the family diet. Food preferences are formed and foundations are laid for a healthy adult life.

Insufficient protein and energy intake, (specific) nutritional deficiencies, imbalances in macronutrient quantity and quality, and also excess energy (empty calories) are inappropriate nutritional signals. Although high as well as low protein intake may have long term consequences, the contribution of dietary fat is perhaps even more impactful. Starting with breast milk, 40-50% of the energy is provided by fat. Dietary fats provide energy for growth, supply the essential fatty acids linoleic acid and alpha linolenic acid, and ensure adequate absorption of the fat-soluble vitamins. Quantitative as well as qualitative differences in the fatty acid composition, specifically in LC-PUFAs content, as well as other aspects of fat quality in the diet of both mum and offspring may have distinct effects on the development of lean body mass, adipose tissue and metabolic function. Any adaptation in organ development will depend on the importance (severity) of the (nutritional) challenge, i.e. how critical a specific nutrient is for a specific stage of development, as well as the timing and duration of the ‘exposure’. Depending on the timing, severity and duration these challenges this may translate into reduced final height and cognitive performance, increased adiposity and metabolic disturbances impacting health throughout life. A focus on improving the provision of age-relevant nutritional solutions, feeding habits and approaches to support more balanced nutritional intakes tailored to the changing needs of the developing child may have significant public health benefits.
In early life, gastrointestinal (GI) health is vital for overall health, growth, development and wellbeing. Functional gastrointestinal disorders (FGIDs) are frequent in infancy with more than half of the infants displaying at least one FGID symptom like infant regurgitation, infantile colic and functional constipation. FGIDs are usually due to the immaturity of digestive system. Gut dysbiosis in early life has been linked to infantile colic and other digestive discomfort. FGIDs and related symptoms impact on families’ quality of life, healthcare cost and infants’ short- and long-term health. Latest international guidelines recommend parental reassurance and education combined with nutritional management as the first line of management for FGIDs. Pharmacological therapy is usually not recommended and not required (except in functional constipation). Continuing breastfeeding should be emphasized. For formula-fed infants, there are several nutritional strategies to modulate the gut microbiota, like adding prebiotics, probiotics and postbiotics to infant formula. Postbiotics are bioactive compounds produced by micro-organisms during a fermentation process. Postbiotics are an emerging field. In infant formula, postbiotics have a safe history of use and are known to be able to impact the gut and immune system. The unique combination of prebiotics and postbiotics in infant formula has clinically been proven to improve the gut microbiota composition and stool characteristics – beneficial to GI health and FGIDs.

DEVELOPMENT CHALLENGES IN INFANTS - TURNING SIGNS INTO NUTRITIONAL SOLUTIONS

Dr. Mohamad Miqdady
American Board of Ped. GI, Hepatology & Nutrition
Chief, Ped. GI, Hepatology & Nutrition Division
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Adjunct Staff, Cleveland Clinic, USA

Dr. Mohamad Miqdady is American Board certified in Pediatric Gastroenterology, Hepatology and Nutrition. He is the Division Chief, Ped. GI Hepatology & Nutrition Division at Sheikh Khalifa Medical City in UAE. Also an Adjunct Staff at Cleveland Clinic, Ohio USA.

Member of the FISPGHAN Council (Federation of International Societies of Pediatric Gastroenterology Hepatology, and Nutrition) Expert member FISPGHAN Malnutrition/Obesity Expert team.

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OVERVIEW OF POSTERS AND ORAL SESSIONS

Infant feeding practices during the first 6 months of life in Singapore: insights from the VENUS study
L. Shek, L.M. Floris, M. Abrahamse-Berkeveld, E.M. van der Beek, Y. Seng Chong, K. Kwek, F. Yap, T. Oon Hoe, VENUS Working Group
Session code: P02
Session title: Infancy
Session type: E-Poster Viewing
Thursday, March 7th, 08:00 - 19:00, Exhibition

Infant feeding pattern and BMI trajectories during the first year of life the ABCD study
D. Sirika, M. Hof, T. Wijkstra, M. Abrahamse-Berkeveld, J. Halbertstadt, J. Sadek, M. Othof
Session code: OPS05
Session title: Oral Presentations Session 5: Infancy II
Session type: Oral Presentations Session
Saturday, March 9th, 12:30 - 12:40, Auditorium 1

Type of feeding in relation to fat mass and fat-free mass indices in infancy
K.S. de Fluiter, I.A.L.P. van Beijsterveldt, D. Acton, A.C.S. Hokken-Koelaga
Session code: P04
Session title: Obesity
Session type: E-Poster Viewing
Thursday, March 7th, 08:00 - 19:00, Exhibition

Partially hydrolyzed whey-based formulae with reduced protein content support adequate infant growth and are well-tolerated
J. Rigo, S. Schoen, M. Verghez, B. van Overmare, W. Marion, M. Abrahamse-Berkeveld and P. Alliet
Session code: OPS08
Session title: Oral Presentations Session 8: Other
Session type: Oral Presentations Session
Saturday, March 9th, 15:35 - 15:45, Auditorium 2

Tracking fat mass percentage from infancy into childhood
I.A.L.P. van Beijsterveldt, K.S. de Fluiter, D. Acton, A.C.S. Hokken-Koelaga
Session code: OPS02
Session title: Oral Presentations Session 2: Obesity
Session type: Oral Presentations Session
Thursday, March 7th, 17:35 - 17:45, Auditorium 3

Mixed milk feeding: prevalence and drivers
C. Monge-Montero, L. van der Marwe, P. Vitaglione, C. Agostoni
Session code: P02
Session title: Infancy
Session type: E-Poster Viewing
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Session code: OPS08
Session title: Oral Presentations Session 8: Other
Session type: Oral Presentations Session
Saturday, March 9th, 15:35 - 15:45, Auditorium 2

Temporal changes in fatty acid profile of human milk: a pooled data analysis
L.M. Floris, B. Stahl, M. Abrahamse-Berkeveld, I.C. Teller
Session code: P02
Session title: Infancy
Session type: E-Poster Viewing
Thursday, March 7th, 08:00 - 19:00, Exhibition

Tracking fat mass percentage from infancy into childhood
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Session title: Infancy
Session type: E-Poster Viewing
Thursday, March 7th, 08:00 - 19:00, Exhibition
TYPE OF FEEDING IN RELATION TO FAT MASS AND FAT FREE MASS INDICES IN INFANCY

K.S. de Fluit, I.A.L.P. van Beijsterveldt, D. Acton, A.C.S. Hokken-Koeverga

Background
Infant body composition influences the development of obesity in adulthood, with a critical window for adiposity programming during the first three months. Feeding type in infants can be an important factor. Fat mass index (FMI) and fat free mass index (FFMI) data allow comparison in body composition between infants with different lengths.

Aims
To investigate the correlation of FMI and FFMI development during the first three months with body composition at 24 months. To investigate the effect of exclusive breastfeeding (BF) or formula feeding (FF).

Methods
From the Sophia Pluto Cohort, 89 exclusively BF (BF ≥ 3 months) infants (47 boys) and 48 exclusively FF (start FF ≤ 1 month) infants (32 boys) were included.

We measured body composition at 1, 3 months by PEAPOD (COSMED) and 24 months by DXA (Lunar Prodigy). Abdominal FM was measured by ultrasound. FMI (fat-mass/length^2) and FFMI (fat-free mass/length^2) were calculated.

Results
Median FMI increased from 2.3 at 1 month to 3.7 kg/m^2 at 3 months, followed by a decrease to 2.6 kg/m^2 at 24 months. Median FFMI was 11.9, 12.2 and 13.0 at 1, 3 and 24 months, respectively.

FMI_{1-3mo} correlated with FMI (R=0.278, p < 0.001) and subcutaneous FM (R=0.204, p=0.003), but not with visceral FM at 24 months.

Change in FMI_{1-24mo} (p=0.500) and FFMI_{1-24mo} (p=0.424) did not differ between BF and FF infants.

Conclusions
Irrespective of infant feeding type, gain in FMI_{1-3mo} correlates with body composition outcomes at 24 months, supporting a critical window for adiposity programming in infancy.
Background and aims
The WHO recommends exclusive breastfeeding for the first 6 months of life and continued breastfeeding supplemented with complementary feeding thereafter, until 2 years of age. We provide preliminary data on (breastfeeding) practices between 0-6 months of Singaporean infants enrolled in an intervention study.

Methods
At birth, infants were enrolled in the VENUS study (clinical registry number NCT016098634). When parents autonomously decided to introduce infant formula, either partially or fully, their infants were randomised to one of three intervention formulas. Age at breastfeeding cessation, formula and complementary food introduction and maternal motivation for breastfeeding cessation were recorded.

Results
Demographic and feeding characteristics were not apparently different between intervention groups, allowing overall cohort analysis. Feeding characteristics of 520 healthy infants (52% male; 63% Chinese, 29% Malay, 8% other ethnicities) were analysed. Only 19% of infants were fully breastfed at 6 months of age, of which 51% received complementary feeding. Although in 71% of the infants formula was already introduced within the first month, 45% was still, either fully or partially, breastfed at 6 months (Figure 1). Irrespective of infant’s age, the main reason to stop breastfeeding was the mother’s perception of insufficient breast milk supply.

Conclusions
In this cohort, only a small percentage of infants met the WHO breastfeeding recommendations. This confirms previous findings by others that partial breastfeeding together with formula and complementary foods up to 6 months of age seems to be common in Singapore.

1 Universite de Liege, Service Universitaire de Neonatologie CHR Citadelle, Liege, Belgium.
2 Danone Nutricia Research, Utrecht, The Netherlands.
3 CHR Namur, Pediatrics, Namur, Belgium.
4 Vrije University of Brussels, Neonatology, Brussels, Belgium.
5 CHC St Vincents, Pediatrics, Liege, Belgium.
6 Jessa Hospital, Paediatrics, Hasselt, Belgium.

2016 NUTRICIA SATellite SYMPOSIUM AND ABSTRACT BOOKLET 17

PARTIALLY HYDROLYZED WHEY-BASED FORMULAE WITH REDUCED PROTEIN CONTENT SUPPORT ADEQUATE INFANT GROWTH AND ARE WELL-TOLERATED
J Rigo1, S Schoier1, M. Verghese2, E. van Overweme3, M. Marian1, M. Abrahamse1, P. Alias1.

Background and aims
Feeding should aim to provide nutritional and functional properties as close as possible to infant’s requirements. The GIRAFFE study investigated the safety and tolerance of partially hydrolysed infant formula with different protein content in healthy full-term infants.

Methods
Fully formula fed infants were randomised ≤14 days of age to receive a standard partially hydrolysed whey formula until 16 weeks of age containing 2.27g protein/100kcal (“pHF2.27”) or the same formula with 1.8 g or 2.0g protein/100kcal (hereafter “pHF1.8” and “pHF2.0”). Primary outcome was equivalence analysis of daily weight gain within margins of +/- 3 g/d; comparison to WHO growth standards using a margin of -0.5SD, gastrointestinal tolerance parameters and number of (serious) adverse events were secondary outcomes.

Results
A total of 207 infants were randomised and 61 (pHF1.8), 46 (pHF2.0) and 48 (pHF2.27) subjects completed the study per protocol. Equivalence in daily weight gain (g/d) was demonstrated for the comparison of pHF1.8 vs pHF2.27, i.e. the estimated difference was -1.12 g/d (90% CI: [-2.72; 0.47]). The comparison of pHF2.0 vs pHF2.27 was inconclusive (-2.52 g/d (90% CI: [-4.23; -0.81]). However, all groups showed adequate infant growth vs WHO growth standards with numerically higher z-scores values in the pHF2.27 vs pHF2.0 and pHF1.8 groups until follow-up at 12 months of age. No relevant differences in other safety and tolerance outcomes were observed.

Conclusions
Partially hydrolysed whey-based formulae with protein levels of 1.8 and 2.0 g/100kcal are safe and support adequate growth similar to the WHO growth standard.

1 Universite de Liege, Service Universitaire de Neonatologie CHR Citadelle, Liege, Belgium.
2 Danone Nutricia Research, Utrecht, The Netherlands.
3 CHR Namur, Pediatrics, Namur, Belgium.
4 Vrije University of Brussels, Neonatology, Brussels, Belgium.
5 CHC St Vincents, Pediatrics, Liege, Belgium.
6 Jessa Hospital, Paediatrics, Hasselt, Belgium.
Background and aims

This study aims to provide a first overview of fatty acid (FA) concentrations in human milk (HM) throughout lactation using pooled data analysis of existing literature, which has not been done before.

Methods

A Medline search was conducted with specific search terms on FAs in HM. The search was confined to English language and with a time limitation from January 1980 until August 2018. Studies providing original data on HM samples from healthy mothers were included. Main exclusion criteria were usage of packed columns for FA chromatography, undefined lactational stage, pooled milk samples across mothers or lactational stages, maternal dietary restrictions, maternal dietary restrictions and reviews.

After data extraction and standardization, weighted least squares means (WLS) and SE were calculated for the most commonly reported FAs, palmitic-, oleic-, linoleic- (LA), arachidonic- (ARA), α-linolenic- (ALA), eicosapentaenoic- (EPA), docosahexaenoic- (DHA) acids in colostrum (0-5 days post-partum), transitional milk (6-15 days) and mature milk (16-60 days) using a random effect model.

Results

The literature search resulted in a total of 54 studies (4295 HM samples) worldwide. Table 1 shows that LA, palmitic and oleic acids seem to remain relatively stable throughout lactation, whereas DHA and ARA seem to decrease, ALA to increase over time and EPA to peak in transitional milk decreasing thereafter.

<table>
<thead>
<tr>
<th>FA</th>
<th>Colostrum</th>
<th>Transitional milk</th>
<th>Mature milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palmitic</td>
<td>20.7</td>
<td>23.39±0.20</td>
<td>24.13±0.27</td>
</tr>
<tr>
<td>Oleic</td>
<td>28.09</td>
<td>28.09±0.80</td>
<td>27.59±0.75</td>
</tr>
<tr>
<td>Linoleic</td>
<td>17.7</td>
<td>17.70±0.79</td>
<td>17.70±0.75</td>
</tr>
<tr>
<td>Arachidonic</td>
<td>2.55</td>
<td>2.55±0.80</td>
<td>2.55±0.75</td>
</tr>
<tr>
<td>α-Linolenic</td>
<td>0.02</td>
<td>0.02±0.01</td>
<td>0.02±0.01</td>
</tr>
<tr>
<td>Eicosapentaenoic</td>
<td>0.02</td>
<td>0.02±0.01</td>
<td>0.02±0.01</td>
</tr>
<tr>
<td>Docosahexaenoic</td>
<td>0.02</td>
<td>0.02±0.01</td>
<td>0.02±0.01</td>
</tr>
</tbody>
</table>

Conclusions

Our pooled data analysis provides an overview of FA concentrations across lactational stages narrowing a scientific gap. Distinctly different temporal patterns seem to exist in HM FA concentrations.

1 Danone Nutricia Research, Utrecht, the Netherlands

Tracking fat mass percentage from infancy into childhood

I.A.L.P. van Beijsterveldt, K.S. de Fluiter, D. Acton, A.C.S. Hokken-Koelega

Background and aims

Early infancy may be a critical window for programming of adult metabolic health. Body composition and fat mass percentage (FM%) during childhood are important determinants of later health. We investigated if FM% in early life tracks into childhood and if feeding mode influences tracking.

Methods

In 269 term born, healthy infants from the Sophia Pluto cohort (165 boys), FM% was measured at 3 and 6 months by PEA POD and at 2 and 4 years by DEXA. Odds ratio (OR) of remaining in the same quartile of FM% was determined over time.

Results

Infants in the lowest FM% quartile at 3 months remained in their quartile at 2 years (OR 3.694, p=0.009). The highest quartile tracked to 2 and 4 years (OR 2.718, p=0.001 and 3.429, p=0.048, resp.)

Infants in the lowest and third quartiles at 6 months remained in their quartile up to 2 years (OR 3.064, p<0.001 and OR 2.037, p=0.030, resp.). The highest quartile tracked to 2 and 4 years (OR 3.707, p<0.001 and OR 4.333, p=0.024, resp.).

Conclusions

FM% tends to track through infancy into early childhood. Especially FM% in the highest quartile persist up to 4 years. FM% tracking is influenced by feeding mode. This could be an indication that final body composition is determined in early life.
MIXED MILK FEEDING: PREVALENCE AND DRIVERS

Carmen Monge-Montero1, Liandré van der Merwe2, Paola Vitaglione1, Carlo Agostoni3,4

Background and Aims
Extensive literature exists on exclusive breast and formula feeding following e.g., institutional protocols, epidemiologic surveys and associations. In contrast, mixed milk feeding (MMF) as such, combining breast and formula feeding, has only been studied incidentally. This study aims to gain insight into MMF prevalence, drivers and practices.

Methods
A systematic review of the literature was performed, focussed on MMF prevalence, drivers and practices. Articles published between January 2000 – May 2018 in English, Spanish, French and Mandarin from 6 databases were screened by 2 authors independently. Titles/abstracts and full text articles were evaluated against a list of a priori inclusion/exclusion criteria.

Results
The search identified 1389 articles of which 454 were potentially eligible and 108 articles were selected. Results were mainly based on cross-sectional data. The prevalence of MMF in infants aged 1-6 months ranged between 8-79%. Median prevalence by month was approximately 30%. Regional comparisons indicated highest MMF rates in East Asia and Middle East. Main reported drivers for MMF were perceived feeling of milk insufficiency, “best of both worlds” (convenience/nutrition), and external factors (breastfeeding in public/family perception). Limited information on MMF practices and duration was found.

Conclusion
Data showed that although exclusive breastfeeding is the best form of infant feeding until 4-6 months of life, MMF is a feeding reality. There is a clear need to better understand this common feeding practice, including its potential effects on the duration of total breastfeeding and related outcomes on nutrition status, growth and development.

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